CASE STUDY
Community Water Testing Project to Monitor the Bellinger River, NSW Australia

THE TEAM
Bellingen Riverwatch is an initiative of OzGREEN and The Department of Planning, Industry & Environment in partnership with Bellingen Shire Council, NSW Waterwatch, Western Sydney University, Taronga Zoo Sydney, Bellingen Landcare, Earthwatch Institute, Eco Logical Australia, North Coast Local Land Services and Jaliigir Biodiversity Alliance.

Bellingen Riverwatch engages 32 local community volunteers and 5 schools to collect monthly water quality data at 24 sites every month across the Bellinger, Never Never, and Kalang Rivers. Scientists from OEH carry out a comprehensive bi-annual water quality and macroinvertebrate surveys and assist with data analysis and interpretation.

BACKGROUND
Bellingen Riverwatch was created to provide consistent water quality data in the Bellinger and Kalang catchments following a disease outbreak that caused a mass death event of the critically endangered Bellinger River Snapping Turtle (BRST) in early 2015. A lack of water quality data was identified by scientists and community alike as a priority focus area.

Prior to this event, the population size for the BRST species was estimated at 1600 – 4500 individuals. The current BRST population is estimated to be between 200 and 300 individuals and predominantly juveniles.

The waterways of the Bellingen Shire are highly valued by the local community as they support many activities, such as recreation and supplementary drinking water. There is therefore a strong community interest in monitoring and improving the water quality and riparian health.

THE PROJECT
Ongoing water quality data is important for monitoring the rivers’ health, identifying priority areas for management actions and educating the community on how to reduce the impact they may be having on their environment.

The main objectives of this project are:

1. To meaningfully engage the community to provide long-term, scientifically robust water quality data to support recovery actions for the Bellinger River Snapping Turtle (‘Myuchelys georgesi’) and other threatened species. The reportable elements of this are Temperature (air and water), pH, Electrical Conductivity, Turbidity, Available Phosphate, Dissolved Oxygen.

2. To enable easy access and use of the data collected to the project stakeholders and the community to aid decision making, guide research, inform policy, raise awareness.

3. To communicate data to the community in an accessible and timely manner which increases awareness and understanding of river health and threatened species conservation, which builds on current levels of stewardship for their river by community members, landholders, and tourists.
INTERVIEW WITH SUE LENNOX

What inspired you and your team to start the Bellingen Riverwatch Project?

OzGREEN had been involving local schools in monitoring the health of our local rivers for 5 years. We were finding some disturbing results (elevated coliform in rural drinking water supplies, high phosphates and low dissolved oxygen). I approached the scientists involved in the turtle recovery program and asked them "what would it take for the scientific community to give attention to citizen science data". To their credit, they listened to us and together we designed the Bellingen Riverwatch program.

How important is it to involve the whole community in a project like this?

Bellingen Riverwatch achieves three very important impacts:

1. It makes river health data accessible to the community in a timely way (within a month of testing).
2. It educates the wider community about river health and what they can do to help
3. It engages community leaders along each river basin in hands on science. They understand the science and in turn have a significant influence on the wider community.

Can you talk us through which parameters you test for and how these give the data you need to see the full river water quality?

We are testing every month for Dissolved Oxygen, Available Phosphate, Turbidity, pH, Conductivity, Temperature. We conduct Faecal coliform testing 2–3 times a year.

How is the DelAgua Kit used within this project?

The kit is used for FC monitoring. We do all sites 2–3 times a year. We also check drinking water quality during community events.

How have the recent bushfires affected testing?

There have been fires burning since early September, in the upper catchment, in ancient World Heritage Gondwana rain forests (that don't burn). After the first rains at Christmas we have seen a huge flush of ash, mud and dead vegetation wash into the river. Usually the river clears in 2-3 days after a flood. This time it has stayed turbid for weeks. There is now a layer of sludge on the bottom, covering rocks and aquatic plants. We are worried about the impact on ecosystem health. There have been fish kills, low oxygen, high phosphate and high turbidity readings and a lot of algal growth reported. In short, a huge negative impact. As I write we are experiencing our 3rd flood in a month. Talk about going from one extreme (worst drought in recorded history) to another (flooding). Welcome to climate change.

How do you foresee the future of the BRST’s population and the general river water quality, now that data is being collected?

It is amazing to be working alongside the scientists responsible for BRST recovery. They really do value the data the community is collecting. For example, the temperature and conditions in the captive breeding ponds mirror what is in the river. The captive breeding program is proving successful, but we have a long way to go. There are only about 200 juveniles that are left in the river. It is a big call to action to the community, and that is our focus in the next 3 years. Engaging the wider community in looking after the river, sub-catchment by sub-catchment.